

P-5.4 Distinguish the different properties of waves across the range of the electromagnetic spectrum.

Revised Taxonomy Level 4.1B Distinguish conceptual knowledge

In physical science students

- ❖ “Summarize the characteristics of the electromagnetic spectrum (including the range of frequencies, wavelengths, energy, and propagation without a medium).” (PS-7.5)

It is essential for all students to

- ❖ Distinguish how the properties addressed in P-5.1 (energy, frequency, amplitude, wavelength, period, phase, and speed) distinguish the specific types of electromagnetic radiation (radio waves, microwaves, infrared, visible light, ultraviolet, x rays and gamma rays).

Assessment

As the verb for this indicator is differentiate (distinguish), the major focus of assessment should be for students to distinguish between the relevant and irrelevant parts or important from unimportant parts of presented materials. Because the verb is differentiate rather than compare, students should assess the distinguishing properties of the different parts of the electromagnetic spectrum. Because the indicator is written as conceptual knowledge, assessments should require that students understand the “interrelationships among the basic elements within a larger structure that enable them to function together.” In this case, assessments must show that students understand how the properties of waves distinguish the various types of electromagnetic radiation.